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Natural Resources Interim Committee
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NATURAL RESOURCE ISSUES INTERIM COMMITTEE
BEAR RIVER WORKING GROUP

The Bear River Aquifer Working Group
Is Comprised of (List Senators and Representatives)
The Working Group will, in consultation with the Bear River ground water advisory committee and other stakeholders, develop a framework for management of the Bear River Aquifer to Ensure the Long-Term Sustainability of the Ground Water Supply for all Beneficial Uses in Accordance with the Prior Appropriation Doctrine as Established by Idaho Law.

INTRODUCTION

The Director of the Idaho Department of Water Resources established the Bear River Ground Water Management Area in August 2001 and appointed a ground water advisory committee. The committee studied the basin issues and recommended management actions. Based on those recommendations, the Director adopted a management plan in February 2003. A key component of the plan is a simplified method for mitigation for new ground water users. Some of the activities outlined in the management plan need to be implemented:

(1) Development of a rental pool;
(2) Creation of a water measurement district;
(3) Development of a state water plan; and
(4) Continued support for the advisory committee.

The Legislature, through House Concurrent Resolution No. 56, directed the Natural Resources Interim Committee to "conduct a study regarding water supply and management issues in . . . the Bear River Drainage." The Natural Resources Interim Committee intends to use the Bear River Working Group to review and formulate a plan for addressing ground water supply and management issues in the Bear River Drainage.

THE RESPONSIBILITIES OF THE BEAR RIVER WORKING GROUP

The Bear River Working Group will make recommendations to the Natural Resources Interim Committee on the following matters:

1) Recommend how the Interim Committee can facilitate the efforts of the ground water area advisory committee;

2) Recommend any additional measures the Interim Committee should consider to address the water supply problems of the Bear River Drainage, including but not limited to the creation of a rental pool for the Bear River Drainage, and establishment of a water measurement district;

3) Evaluate and make recommendations regarding an administrative structure for ensuring that short-term and long-term aquifer management goals are implemented; and

4) Recommend performance benchmarks for addressing the Bear River Basin ground water supply issues.

5) Recommend actions necessary to conjunctively manage surface and ground water in the Bear River Basin.

OVERVIEW OF BEAR RIVER HYDROLOGIC CONDITIONS AND WATER SUPPLY ISSUES

1) Description of Aquifer System/Connected Water Supply: The Bear River basin encompasses 7,400 square miles, with 2,700 square miles in Idaho. Entering from Wyoming, the Bear River flows into Idaho, winds its way west, north, then south into Utah. It ultimately discharges into the Great Salt Lake and is the largest tributary. Throughout the basin, ground water is generally in hydraulic connection with the streams, with the exception of two areas.

2) Physical Characteristics:

   The Bear River enters Idaho at Border, Wyoming. The river discharges an average annual runoff of 340,000 acre-feet. The Bear River gains water from tributaries and ground water recharge as it flows toward Utah. Idaho farmers divert substantial quantities of water from the river for irrigation between Alexander, near Soda Springs, Idaho, and the Idaho-Utah state line. The average annual discharge at the Idaho-Utah state line gage is about 850,000 acre-feet. About half of this water originates in Idaho.

   Water flowing in Bear River can be diverted to Bear Lake for storage. The point of diversion is located approximately 5 miles south of Montpelier, Idaho, at Stewart Dam. Water can be released into Bear Lake or sent back to the Bear River through the Outlet Canal.

Bear Lake has an active storage capacity of 1.4 million acre-feet, and a total capacity of about 6.5 million acre-feet. The top three feet of Bear Lake water can be released by gravity. Additional water from Bear Lake must be extracted by large pumps located at the north end of Bear Lake at a location called Lifton. PacifiCorp generates electricity at Lifton when water flows out of the lake by gravity. PacifiCorp also pumps water from the lake to supply water rights and contractual commitments to deliver water downstream.

Because the storage capacity of the lake exceeds three times the average annual inflow, Bear Lake may not refill for several years once it has been drawn down. When there is significant water stored in Bear Lake, however, the lake can also supply storage water during a succession of dry years, unlike most reservoirs in Idaho, which can be drafted completely in one year.

Ground water and streams are hydraulically connected. There are two exceptions: (1) The reach of the Bear River between Alexander and Grace is perched above the water table; (2) There is a ground water divide west of Alexander in the Gem Valley that separates the ground water into two systems--ground water north of the divide flows northwest into the Portneuf River basin, south of the divide, ground water flows south, discharging into the Bear River as springs in Black Canyon.

3) Problems and Constraints:

Because ground water and surface water are hydraulically connected, pumping ground water depletes surface water.

Utah, Wyoming, and Idaho established an interstate compact to address interstate basin issues. The compact was originally approved in 1958 and was amended in 1980. The compact identifies future depletion amounts to which each state is entitled. The Bear River Commission, which oversees the implementation of the compact, has worked to establish common water right accounting procedures among the states. These activities relate to interstate activities. Each state retains the authorities and responsibilities for administering water rights and other water related activities within its jurisdiction.

The area is in transition from agricultural land use to residential subdivision development. Demand for water for new residential uses creates a need for ground water. With a fully appropriated surface supply and demand for new ground water that will deplete surface water, new and innovative water exchange methods are needed.

4) Uncertainties:

Actual injury of surface water users by ground water users depleting the surface flows is unknown. The amount of depletion can be calculated, but the injury to senior surface users is based on temporal and spatial conditions that are beyond the current understanding of the surface-ground water relationship.

A water rental pool would provide for enhanced flexibility in water right changes. The previous efforts to develop an interstate rental pool were unsuccessful. It is unknown if renewed efforts would be more successful, or if an Idaho-only pool could be established.

Extremely low levels in Bear Lake will likely cause a water emergency to be declared by the state of Utah. The declaration will lead to closer scrutiny of the natural flow rights administered under the interstate accounting system. The lack of adequate storage water to supplement natural flow will probably require curtailment of rights in Idaho.

BIBLIOGRAPHY OF RELEVANT PUBLICATIONS

1) The Bear River Compact, as amended, identifies limitations and agreements for interstate administration of water use in the Bear River Basin.

2) The Preliminary Order Adopting a Ground Water Management Plan, adopted in 2003, describes the mitigation options and alternatives available for new ground water appropriations.

3) Technical reports provide hydrologic and other information regarding depletions. These reports include:

4) Hydrologic Reconnaissance of the Bear River Basin in Southeastern Idaho, by N. P. Dion, IDWR Water Information Bulletin No, 13, 1969.

5) Investigation of the Ground Water Flow System in Gem Valley, by Marc A. Norton, IDWR Open File Report, 1981.

6) Two reports are available to determine depletion:

Amended Bear River Compact Commission Approved Procedures, November 1993 (depletion calculations)

Procedures for Estimating Depletion in the Lower Bear River Basin in Idaho, by Robert W. Hill, January 2003, submitted to PacifiCorp.